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10/771,618

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Nobuhiro Miyakawa

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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/771,618

Applicant(s)

MIYAKAWA, NOBUHIRO

Examiner

Christopher RoDee

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election of Group II, claims 9-24 in the reply filed on 10 February 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following discussion is applicable to claims 9-15.

Claim 9 recites an image forming apparatus in which electrostatic latent images are formed on a latent image carrier, developed with toner of different colors, and transferred to a recording medium after development. The work functions of the toners are specified and the relationship of the latent image carrier work function to that of one of the toners is also specified. The claims dependent on claim 9 provide further definition of the relationship of the image carrier and toner work functions (claim 10), the absolute work function of the image carrier (claim 11), the charge characteristics of the toners and image carrier (claim 12), the

Art Unit: 1756

characteristics of the toners and the amount of toner applied to the developing device and the image carrier (claims 12 & 13), and the characteristics of the recording paper (claim 14).

These claims intend to define the apparatus by the manner in which it is used or operated, as seen in the independent claim where the claim specifies forming electrostatic latent images on a latent image carrier, developing the images with toner of different colors, and transferring to a recording medium after development. The toner also defines the apparatus. As discussed in MPEP 2114, the manner of operating a device does not differentiate an apparatus claim from the prior art. Further, as discussed in MEPP 2115, the material worked upon by the apparatus does not provide a patentable limitation.

The instant claims are indefinite because they appear to recite no specific structure. The apparatus is defined in its totality by the manner in which it is used and on the materials worked upon by the apparatus (i.e., the toner). The toner is a material worked upon by the apparatus because it is consumed during the normal and intended operation of the apparatus. The structure of the apparatus does not change because of how the apparatus is used or because of the material worked upon. Consequently, the claims are indefinite because it is unclear what structure is present to define the apparatus.

The claims are also indefinite because the image carrier work function is defined based on the work function of the toner. However, the toner is not a patentable portion of the apparatus. Thus, the toner is not a part of the apparatus and it cannot provide a limitation to the image carrier.

In the event the image carrier is present as a structural component of the apparatus, the claims will be considered as requiring an image carrier. Additionally, claim 13 requires a regulating blade with a developing device.

Art Unit: 1756

The following discussion is applicable to claims 17-24.

This claim is indefinite because the latent image carriers' arrangement is defined by the work function of the toners. As noted above, the toner (a powder) is a material worked upon during the operation of the apparatus. It provides no structural limitation to the apparatus and no patentable limitation to the apparatus (see MPEP 2114 & 2115). The claim does not particularly point out and distinctly claim the apparatus because the claim is basing its arrangement of image carriers on the toners, which do not form a limitation on the claims. As a result, the claim is indefinite because it is unclear what the work function is for the image carriers.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9, 10, and 12-24 are rejected under 35 U.S.C. 102(b) as being anticipated by *Handbook of Imaging Materials* to Diamond, pp. 164-168.

As noted above, the process of operating or using the apparatus recitations do provide any patentable limitation to the apparatus claims because an apparatus is defined by its structure, not by the manner in which it is used. Further, the toner recitations in the apparatus do not provide any structural limitation to the apparatus because the toner is a material worked upon by the apparatus. See MPEP 2114 & 2115. The above rejected claims have been examined on this basis.

Diamond shows that image forming apparatuses for multicolor reproduction are known to have a single image carrier with multiple passes of the image carrier (i.e., the photoreceptor) passed a single imager (Fig. 4.17) or a single pass with either a single photoreceptor and a single imager or multiple (e.g., four) photoreceptors and an imager for each photoreceptor. Figure 4.19 shows two imaging apparatuses that have a single drum and developing devices for each color. The color toner images are superposed on top of one another on the receiver paper. Figure 4.20 shows single pass examples with one photoreceptor for each color and a development device for each photoreceptor. The toner images are sequentially transferred to the receiver along the process path to a receiving paper, which is moved by a feeding belt. As discussed in the corresponding text for each Figure, the disclosed apparatuses used organic photoreceptors (OPC). Diamond also discusses and depicts the use of a regulating blade to control the thickness of toner on the surface of a roller for a developing device (Figs. 4.9, 4.10). Paper as a receiver is also disclosed (Fig. 4.13).

Since the Diamond text discloses each patentable feature of the apparatus the claims are properly anticipated by this disclosure.

Claims 9-24 are rejected under 35 U.S.C. 102(a) and/or (e) as being anticipated by Miyakawa *et al.* in US Patent Application Publication 2003/0095814.

As noted above, the process of operating or using the apparatus recitations do provide any patentable limitation to the apparatus claims because an apparatus is defined by its structure, not by the manner in which it is used. Further, the toner recitations in the apparatus do not provide any structural limitation to the apparatus because the toner is a material worked upon by the apparatus. See MPEP 2114 & 2115. The above rejected claims have been examined on this basis.

Miayakwa discloses an image forming apparatus in Figure 3 having a negative charged photoreceptor (latent image carrier) **140** having a work function is rotated in a direction of arrow by a suitable driving means. Arranged around the photoreceptor **140** along the rotational direction are a charging roller **160** as the charging means, developing devices **10** (Y, M, C, K) as the developing means, an intermediate transfer device **30**, and a cleaning means **170**. The outer surface of the photoreceptor **140** is uniformly charged and then exposed to selective light **L1** corresponding to desired image information by an exposing unit **40**, thereby forming an electrostatic latent image on the photoreceptor **140**. The electrostatic latent image is developed with developers by the developing devices **10**.

The developing devices **10** are a developing device **10Y** for yellow, a developing device **10M** for magenta, a developing device **10C** for cyan, and a developing device **10K** for black. These developing devices **10Y**, **10C**, **10M**, **10K** can swing so that the development roller (developer carrier) **11** of only one of the developing devices is selectively in press contact with the photoreceptor **140**. These developing devices **10** hold negatively charged toners, having a work function relative to the work function of the photoreceptor, on the respective development rollers. Each developing device **10** supplies either one of toners of yellow Y, magenta M, cyan C, and black K to the surface of the photoreceptor **140**, thereby developing the electrostatic latent image on the photoreceptor **140** in superposition. Each development roller **11** is

Art Unit: 1756

composed of a hard roller, for example a metallic roller, which is processed to have rough surface. The developed toner image is transferred to an intermediate transfer belt **36** of the intermediate transfer device **30**. See ¶¶ [0118] – [0137]. An effect work function for the organic photoreceptor (OPC) is 5.48 eV (Table 1).

Figure 4 discloses an apparatus comprising an intermediate transfer belt **30** which is wound onto and tightly held by only two rollers, i.e. a driving roller **10** and a driven roller **20**, and is driven to circulate in a direction of arrow (the counter-clockwise direction), and a plurality of (four) single-color toner image forming means **40** (Y, C, M, K) arranged along the intermediate transfer belt **30**. Respective toner images formed by the single-color toner image forming means **40** are sequentially primary-transferred to the intermediate transfer belt **30** by transfer means **51, 52, 53, 54**, respectively. The respective primary transfer portions are indicated with T1Y, T1C, T1M, and T1K. These single-color toner image forming means **40** (Y, C, M, K) are arranged on a loose side of the intermediate transfer belt **30**. Toner images are sequentially transferred to the intermediate transfer belt **30** and sequentially superposed on each other on the intermediate transfer belt **30** so as to form a full color toner image. The full color toner image is secondary-transferred to a recording medium P such as a paper at a secondary transfer portion T2 and is fixed by passing the recording medium P between a pair of fixing rollers **61**.

Each of the structural limitations of the apparatuses are disclosed by the reference.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.



Art Unit: 1756

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdr  
17 April 2006



**CHRISTOPHER RODEE**  
**PRIMARY EXAMINER**